AMENDMENT TO THE CLAIMS

The following claim listing replaces all prior listings and versions of the claims:

LISTING OF CLAIMS

1. (Currently Amended) An image coding method for coding a moving picture, comprising:

a first step of detecting a motion vector for a current image to be coded using a reference image;

a second step of performing motion compensation to the reference image using the motion vector; and

a third step of coding, using orthogonal transformation, quantization and variable-length coding, a difference between the current image and the motion-compensated reference image and producing coded data,

wherein the first step includes:

performing a first search by matching between the current image and the reference image ~~to perform a first search~~; ~~and~~

determining whether a motion vector is detected in the first search; and

performing, ~~if~~ only when no motion vector is detected in the first search,

~~substantially the same frequency~~ wavelet transform to both of the current image and the reference image, and then matching between size-reduced images generated by the ~~frequency~~ wavelet transform to each other to perform a second search.

2. (Original) The method of claim 1, wherein the first step further includes determining, if no motion vector is detected in the second search, to code the current image by intra coding, instead of performing the second and third steps.

3. (Original) The method of claim 1, wherein the orthogonal transformation is DCT.

4. (Original) The method of claim 1, wherein the variable-length coding is Huffman coding.

5. (Cancelled)

6. (Currently Amended) The method of claim 1, wherein the first step further includes obtaining a final motion vector for the ~~original~~ current image by provisionally using a motion vector detected in the second search and referring to the ~~original~~ reference image.

7. (Currently Amended) The method of claim 1, wherein in the first step, if no motion vector is detected in the second search, the ~~frequency~~ wavelet transform and matching between the size-reduced images are repeatedly performed until a motion vector is detected.

8. (Currently Amended) The method of claim 7, wherein in the first step, if the ~~frequency~~ wavelet transform and matching between the size-reduced images are repeated a predetermined number of times and then no motion vector is detected, it is determined to code the current image by intra coding, instead of performing the second and third steps.

9. (Currently Amended) The method of claim 8, further comprising a fourth step of measuring the coding amount of the coded ~~date~~ data,

wherein the predetermined number is set according to the coding ~~mount~~ amount measured in the fourth step.

10. (Currently Amended) The method of claim 1, wherein in the first step,

whether or not to perform ~~frequency~~ the wavelet transform to the current and reference images is determined, and

if it is determined not to perform ~~frequency~~ the wavelet transform and then no motion vector is detected in the first search, the second search is not performed and it is determined to code the current image by intra coding, instead of performing the second and third steps.

11. (Currently Amended) The method of claim 1, wherein in the first step,

it is detected whether or not ~~frequency~~ the wavelet transform has been performed in motion vector detection to a macroblock located in a position in a previous frame corresponding to that of a motion detection target macroblock, or a macroblock adjacent to the motion detection target macroblock in the same frame, and

if the ~~frequency~~ the wavelet transform has been performed, the first search is not performed and the second search is performed.

12. (Currently Amended) An image coding apparatus for coding a moving picture, comprising:

a detection block for detecting a motion vector for a current image to be coded using a reference image;

a motion compensation section for performing motion compensation to the reference image using the motion vector detected by the motion detection block; ~~and~~

a coding block for coding, using orthogonal transformation, quantization and variable-length coding, a difference between the current image and the motion-compensated reference image and producing coded data; and[[,]]

a microcomputer for determining whether motion vector detection using size-reduced images is needed,

wherein the motion detection block includes:

a first ~~frequency~~ wavelet transform section for performing a first ~~frequency~~ wavelet transform to the current image to generate a first size-reduced image; and

a second ~~frequency~~ wavelet transform for performing a second ~~frequency~~ wavelet transform which is substantially the same as the first ~~frequency~~ wavelet transform to the reference image to generate a second size-reduced image, and

the motion detection block is so configured to be able to detect a motion vector for the first size-reduced image by referring to the second size-reduced image.

13. (Currently Amended) The apparatus of claim 12, wherein

the motion detection block includes a counter at which an upper limit for the number of repeating ~~frequency~~ wavelet transform can be set from ~~the~~ outside of the apparatus, and

each of the first and second ~~frequency~~ wavelet transform sections has an upper limit of the number of repeating the first or second ~~frequency~~ wavelet transform to a current image or a reference image, the upper limit being set at the counter.

14. (Currently Amended) The apparatus of claim 12, wherein the motion detection block is so configured to be able to change ~~it~~ its operation between performing motion vector detection to the first size-reduced image and performing motion vector detection to the ~~original~~ current image.

15. (Currently Amended) The apparatus of claim 14, wherein the first and second ~~frequency~~ wavelet transform sections stop their respective operations when the motion detection block performs motion vector detection to the current image.

16. (Currently Amended) The apparatus of claim 14, further comprising:

a buffer memory for temporarily storing the coded data output from the coding block; and

a control section for monitoring a coding amount stored in the buffer memory and instructing, based on the coding amount, the motion detection block to perform motion vector detection to the first size-reduced image or to the ~~original~~ reference image.

17. (New) The method of claim 1, wherein determining whether a motion vector is detected in the first search is made by comparing evaluation values for a correlation degree obtained in the matching of the first search with a predetermined threshold value.